THE DRIFT ICE OF THE GREAT NEWFOUNDLAND BANK AND ITS DANGER TO NAVIGATION.

THE principal article in *Naturwissenschaftliche Wochenschrift* of June 9 is devoted to a very interesting contribution by Herr Otto Baschin (Geographical Institute, Berlin) to our present knowledge of this subject and of icebergs generally, to which the *Titanic* disaster of April 14 has directed attention. It is pointed out that nowhere do the masses of ice from polar regions advance so far in the equatorial direction as those which frequent the vicinity of Newfoundland. The drift of this ice southwards and eastwards is most active between January and July. About the middle of June the ice-limit begins to recede north-westwards, and after August ice is usually only met with (if at all) on the northern edge of the banks and on the east coast of Newfoundland. Icebergs generally appear later than field ice, but the probability of meeting with both differs considerably from month to month and from year to year, and it may be seen from this article and from the valuable monthly charts issued by our own and other meteorological offices that great bergs may be met with in any month. The chart of the North Atlantic for July issued by the Meteorological Committee states: "The first berg of 1912 was passed on January 7 . . . but ice has been present in the North Atlantic since January 28, 1911."

The region in which ships must probably expect to meet ice lies between long. 40° and 60° W., and the district in which it is most frequent is between 45° and 55° W., and extends southwards to latitude 41° N.; but, as shown in the charts above referred to, icebergs have occasionally been seen in nearly all parts of the Atlantic north of latitude 30° N. Most of these bergs have their origin in western Greenland, being the seaward projecting ends of huge glaciers broken off by the upward pressure of the water. Some of them are of enormous dimensions, of which only about one-seventh part is visible above the surface of the water. The part below water, the so-called "foot" of the iceberg, mostly projects sideways for a considerable distance. To add to the difficulties of navigation between northwest Europe and Canada and the United States, the prevalence of fog is very great, owing to the meeting of cold and warm ocean currents in the vicinity of Newfoundland.

Since the *Titanic* catastrophe, with the view of minimising the risk to shipping, a more southerly route has been agreed upon, in which the meridian of 45° W. is crossed in latitude 38° N. It has been shown by Dr. G. Schott, of the Deutsche Seewarte, to whose work on the subject the author of the article is much indebted, that there is an intimate connection between the east Greenland and Newfoundland ice conditions, and Herr Baschin suggests that useful forecasts might possibly now be issued, based on ice reports received by Iceland cable and by wireless telegraphy, in addition to the notices in the charts above referred to. With respect to the loss of the *Titanic*, he expresses the opinion that the hull of that vessel was ripped by the far-reaching invisible "foot" of an iceberg, resembling to all intents and purposes a sunken reef, and rejects the idea that she collided directly with the visible portion of the berg.

NOTES.

AT the seventy-eighth annual general meeting of the Royal Statistical Society, held on June 18, Prof. F. Y. Edgeworth was elected president for the year 1912–13.

THE Livingstone gold medal of the Royal Scottish Geographical Society has been awarded to Captain Roald Amundsen for his geographical discoveries on his recent expedition to the south pole.

THE Secretary of State for India in Council notifies that no vacancies in the Geological Survey Department are expected to occur during the current year. It is anticipated that one appointment will be made in the year 1913.

MR. JAMES MURRAY has been awarded the Neill prize by the Royal Society of Edinburgh for his paper on Scottish Rotifers collected by the Lake Survey, and other papers on the Rotifera and Tardigrada; and Prof. Alexander Smith the Keith prize for his researches on sulphur and vapour pressure.

WE regret to see the announcement of the death, on June 18, at sixty-three years of age, of Mr. Alexander Knox, map curator of the War Office, and author of a valuable work on "The Climate of the Continent of Africa," published last year by the Cambridge University Press.

A REUTER message from Berlin states that a German expedition to the Arctic, which will endeavour to make the North-East passage, and is expected to last three or four years, will start, under the leadership of Lieutenant Schröder-Stranz, in June, 1913. The Berlin Museum will supply the scientific equipment; and a staff of prominent men of science will accompany the expedition.

WE regret to record the death on June 22, at thirty-nine years of age, of Mr. R. W. C. Shelford, known by his work in entomology, particularly on the Blattidæ, on which he was the leading authority. Mr. Shelford was a graduate of the University of Cambridge, and for a time was curator of the museum at Sarawak. Upon his return to England he became an assistant in the Hope Department of the museum at Oxford, where he did valuable work. He suffered from tuberculosis of the thigh, and had been in a nursing home at Margate since last January.

THE annual exhibition of antiquities discovered during the third season of excavations at Meroë, Sudan, carried on in connection with the Institute of Archæology, University of Liverpool, will be held in the rooms of the Society of Antiquaries, Burlington House, London, W., from July 9 to July 23 inclusive. The exhibition will be inaugurated by the Bishop of

London, and the Earl of Derby will also speak at the opening ceremony.

AT the anniversary meeting of the Reale Istituto Veneto the following prizes were announced:—A botanical prize for 1908–10 (Arrigo foundation), divided between Dr. Augusto Béguinot and Prof. Alessandro Trotter; a prize for the study of higher plant-life in the Venice lagoons (Querine Scampaglia foundation), to Dr. Augusto Béguinot (Padua); a prize under the same foundation to Prof. Domenico Mazzotto (Modena), for a study and experimental investigations on the modern theory of metallic alloys, and a second prize on the same theme to the author of a paper on the quaternary alloys of tin, cadmium, bismuth, and lead.

THE celebration of the jubilee year in the history of the two French reviews—the *Revue Bleue* and the *Revue Scientifique,* the subtitle of which is the *Revue Rose*—was held in Paris on June 12, at the Hôtel Continental. The editors were supported at a banquet by representatives of the Government, Parliament, the University, and the Institute of France; in fact, not only were men of science, artists, and men of letters present, but Parisian society generally united to do honour to the occasion. M. Ch. Moureu, the editor of the *Revue Scientifique,* in speaking in the name of science, dwelt on the advances made in science during the last fifty years, and was followed by M. Lippmann, president of the Paris Academy of Sciences, who referred appreciatively to the work done by our contemporary to assist the spread of scientific knowledge.

THE (biennial) health conference and exhibition was opened at the Royal Horticultural Hall, Westminster, on Monday last, and closes to-day. Among the subjects which have been discussed at the afternoon conferences may be mentioned:—"How to conduct an infant consultation," "the prevention of deafness in children," "schools for mothers," "urban and rural housing," "the necessity for further manual training in public elementary schools," and "the teaching of practical domestic economy in schools: its importance to the nation." Several popular lectures were arranged for the evenings. The first two, for women only, were on "why babies die," by Mrs. Barnes, and "the health of girls," by Miss F. Stacpoole. Dr. C. Porter lectured on healthy homes and domestic hygiene last evening, and to-night Dr. C. W. Saleeby will open a discussion on eugenics and national health.

THE annual meeting of the British Medical Association will be held in Liverpool on July 23–26. The president-elect is Sir James Barr, consulting physician, Royal Infirmary, Liverpool. The president's address will be delivered on July 23. The address in medicine will be delivered by Dr. George A. Gibson, physician, Edinburgh Royal Infirmary, and the address in surgery by Mr. Frank T. Paul, surgeon, Liverpool Royal Infirmary. The scientific business of the meeting will be conducted in twenty sections, which, with their respective presidents, are as follows:—Anæsthetics, Dr. D. M. Buxton; Anatomy, Dr. W. Wright; Bacteriology, Prof. J. Ritchie: Dermatology, Prof. W. G. Smith; Diseases of Children, including Orthopædics, Mr. R. Jones; Electro-therapeutics, Mr. C. T. Holland; Gynæcology and Obstetrics, Prof. H. Briggs; Laryngology and Rhinology, Mr. J. M. Hunt; Medical Sociology, Dr. J. C. McVail; Medicine, Prof. T. R. Glynn; Navy, Army, and Ambulance, Colonel D. Harrisson; Neurology and Psychological Medicine, Mr. L. R. Oswald; Ophthalmology, Mr. E. A. Browne; Otology, Mr. H. E. Jones; Pathology, Prof. W. Hall; Pharmacology and Therapeutics, Prof. W. E. Dixon; Physiology, Prof J. S. Macdonald; State Medicine and Industrial Diseases, Dr. A. K. Chalmers; Surgery, Prof. R. Parker; Tropical Medicine, Prof. J. L. Todd.

BY the death of Prof. Charles André, one of her oldest and most active astronomers, France has sustained a severe loss. Born in 1841, André graduated in 1863, and a year later joined the staff of the Paris Observatory under Wolf. The observation of the transit of Venus, at Noumea, in 1874, afforded him material for a masterly thesis, for his doctorate, on the effects of diffraction in optical instruments. In 1878, two years after being called to the chair of astronomy at Lyons, he journeyed to Utah to observe the transit of Mercury. In 1879 he was appointed director of the newly founded Lyons Observatory, a position which he filled with devoted activity until his death on June 6. Always attracted to planetary studies, André paid considerable attention to the puzzling light-changes of the newly discovered Eros in 1901, and published many notes which considerably assisted in their elucidation. His "Traité d'Astronomie stellaire" and "Les Planètes et leur Origine" exhibit the workings of his vivid imagination ever tempered by the rarer faculty of judicial analysis, attributes which, more recently, enabled him vigorously to defend the Laplacian theory. The influence of his sympathy and example is shown by the fact that many of his assistants have since become directors of observatories, and his death will be mourned by all who were fortunate enough to enjoy personal contact with him.

THE Journal of the Royal Microscopical Society (1912, part ii.) contains the presidential address of Mr. H. G. Plimmer, F.R.S., on certain blood parasites, which records observations on the blood parasites of animals living in the Zoological Gardens, London. A number of filariæ and protozoa were found, many of which are new to science.

A NUMBER of observations are recorded by Prof. Slonaker on the effect of a vegetable diet on the activity, rate of growth, and longevity of the albino rat (Leland Stanford Junior University Publications, 1912). The omnivorous feeders are much more active, perform more work, and live longer than the vegetable feeders, and the effect on general conditions of the body was overwhelmingly in favour of the omnivorous.

DR. H. O. FEISS contributes a paper on the fusion of nerves to *The Quarterly Journal of Experimental Physiology* (v., No. 1). The nerves are caused to fuse and grow together by crushing with a clamp and tying the crushed portions together with a catgut ligature. The general conclusions are that regeneration and restoration of conductivity take place in both nerves below the scar, as well as conduction of impulses through the scar, both along the original paths and from one nerve to the other. The research opens up further possibilities in the restoration of function in divided nerves by operative treatment.

A SERIES of interesting observations has been made by Mr. L. L. Woodruff on the origin and sequence of the protozoan fauna of hay infusion (*Journ. Exper. Zoology,* vol. xii., No. 2). An infusion of hay allowed to stand shows an extraordinary succession of protozoa, the sequence being Monad, Colpoda, Hypotrichida, Paramecium, Vorticella, and Amœba, the determining factors of this sequence probably being those involving food supply and specific excretory products. It is concluded that these protozoa are derived from the grass, on which, after dew or rain, the various forms may be found—an observation previously recorded by Kent.

"SPECULATIONS with regard to the Simplest Forms of Life and their Origin on the Earth" is the title of Prof. Minchin's presidential address to the Quekett Microscopical Club, which appears in the April number of the club's journal. Prof. Minchin suggests that it is the chromatin-substance which represents the primary living matter, the true material basis of life, and that the cytoplasm is of secondary importance in this respect. Organisms with abundant cytoplasm, such as amœbæ, are probably far from representing the most primitive type of living beings, which may have originated as extremely minute bodies, tiny specks of chromatin.

DR. DUCKWORTH describes an Ashanti skull with defective dentition (*Journ. Anatomy and Physiol.,* xlvi., part iii.). It is that of a young adult in which the upper incisor teeth have been removed, evidently in early childhood. This kind of mutilation is characteristically East African, and is met with in crania from rock-hewn tombs in Abyssinia of the fifth century A.D.

WE have received a copy of the fifth edition, published by Mr. Upcott Gill, and revised by Mr. C. J. Davies, of a popular little book, entitled "Fancy Mice," which, we believe, is regarded as the standard authority by breeders of these rodents. The present edition is stated to include the latest scientific information on the subject of breeding for colour, and we notice that the recent theory of the derivation of the Japanese waltzing mice from the wild *Mus wagneri* of China is duly recorded.

IT is not a little remarkable that a distinct difference between the colouring of the British representative of the lesser black-backed gull and the typical Scandinavian bird should have until recently escaped notice. These differences are brought out, with the aid of a photograph, by Mr. P. B. Lowe, in the June number of *Witherby's British Birds.* From this it appears that the species includes the typical Scandinavian or eastern race, with the pale areas of the neck and back dusky, and the British or western race (*Larus fuscus britannicus*), in which the same areas are lighter, the latter extending to the Spanish peninsula, North Africa, and the Azores.

ORNAMENTAL and other trees and shrubs in Illinois are, it appears from the twenty-sixth report of the entomologist of that State, particularly liable to the attacks of insects of various kinds. "Trees which have grown for years . . . begin to weaken and decay, the owner knows not why. This is often due to borers or scale-insects, the presence of which has not been detected or suspected, but whose injuries might have been prevented if the facts had been known in time." To remedy this unsatisfactory state of affairs by making owners familiar with the life-histories of the more destructive species of insects is the object of much of this report, which, although dated 1911, bears no clue as to its place of publication.

THE second volume of the 94th *Jahresversammlung* of the *Verhandlungen der Schweiz Naturfor. Gesellschaft* contains a summary of the results of recent investigations with regard to the former presence of an "Allemannienne" race in Switerland. Examination of a series of prehistoric skulls and skeletons indicates that the ancient Allemanniennes and modern inhabitants of northern Switzerland belong to two widely sundered types, the former being related to the population of Franconia, Moravia, and north-west Germany from the ninth to the fourteenth century. These people were a blonde-haired race resembling in physical characters the modern Swedes. This indicates that while great modifications have taken place since prehistoric times in the population of northern Switzerland and southern Germany, that of Sweden has remained practically in its original primitive condition, so far as the physical type is concerned.

FOR many years past the exact nature of the peculiar tooth-like Palæozoic fossils described as Edestus, Helicoprion, &c., has formed an unsolved puzzle, some ichthyologists regarding these curious structures as forming part of the mouth-organs, while others have regarded them as appendages to the dorsal fins of Palæozoic sharks. A specimen, referable to Edestus, discovered some eighteen years ago in the Coal Measures of Iowa, supplies, according to Dr. O. P. Hay (Proc. U.S. Nat. Mus., No. 1884, vol. xlii., p. 31), the solution of the problem. This specimen is double, comprising an upper and a lower element, and seems to indicate that these structures pertain to the region of the mouth. Both the upper and the lower elements are bilaterally symmetrical, and appear to have been produced in front of the mouth of the shark in such a manner that one worked against the other. Their shafts were produced by the consolidation of a median row of teeth, which gradually became worn out in the fore part of the series in the usual shark-fashion, but the bases of which persisted to form the shaft.

SEISMOLOGISTS will be interested in the article on the Taal volcano in the Philippine Islands and the account of the destructive eruption on January 30, 1911, which Mr. Dean Worcester, Secretary of the Interior of the Philippine Islands, contributes to *The National Geographic Magazine* for April. The splendid collection of photographs procured at serious risk of life gives a most realistic picture of this great disaster. Even now it is dangerous to approach the neighbourhood of the volcano, and as since the eruption the waters of Bombon Lake have been flowing into the crater, it is well within the limits of probability that the map of Batangas province may at any time be suddenly and materially altered, and the people of Europe and America may again have an opportunity of observing some of the wonderful red sunsets which followed the eruption of Krakatoa. An account of the Taal eruption appeared in NATURE of November 2, 1911 (vol. lxxxviii., p. 12).

THE Swiss Earthquake Commission is one of the oldest bodies established for the observation and registration of earthquakes, it having been founded in 1878 by Profs. Forel, Forster, and Heim, though its actual work began with the year 1880. Dr. J. Früh has recently published a summary of the first thirty years' work, together with a description of the seismological observatory at Zurich (*Verhand. der Schweiz. Naturfor. Gesell.*, vol. i., pp. 57–80). The total number of Swiss earthquakes recorded in this period is 998, or about 33 a year, the annual number ranging from 7 in 1900 to 174 in 1881. The shocks are subject to a strongly marked annual variation in frequency, with its maximum epoch about the end of January. So far as can be judged from a somewhat confused map on which the disturbed areas of more than 200 earthquakes are laid down, earthquakes visit nearly all parts of the country, but seem especially concentrated towards the west and east ends. The disturbed areas seem for the most part to be elongated in the directions of the mountain-chains.

IN a note contributed to the *Atti dei Lincei*, xxi. (1), 7, Prof. G. Peano criticises the ordinary definition of probability, according to which the probability of an event is measured by the ratio of the number of ways in which it happens to the total number of ways in which it either happens or fails. This definition implies the assumption that all the different ways are equally probable, and thus assumes the conception of probability which it is attempted to define. Dr. Peano proposes a symbolic definition in the notation of mathematical logic, which, being interpreted in words, is as follows:—If a and b are classes, and the total number of class a is finite, the symbol $P(b, a)$ denotes the number of a that are b divided by the total number of a.

MANY devices have been proposed for finding the real roots of algebraic polynomial equations by graphical or mechanical methods. A novel form of mechanism based on principles resembling those employed by Lagrange and Sequier is described by Dr. R. F. Muirhead in the Proceedings of the Edinburgh Mathematical Society, xxx. (1911–12). The principle is based on repeated applications of the geometrical construction for a fourth proportional, which enables any polynomial to be built up by suitably varying the segments representing the coefficients. In subsequent paragraphs, Dr. Muirhead describes modifications suitable for solving simultaneous equations. Imaginary roots of an equation of degree n are to be got by finding an appropriate related equation of degree $\frac{1}{2}n(n-1)$; for example, the equation for the squares of the differences of the roots would be useful.

PROF JOSEPH BOWDEN has published a short note read before the American Mathematical Society on the Russian peasant method of multiplication, which is said to be in use in many villages in Russia. The method involves the operations of doubling, halving, and adding, but it requires no use of the ordinary multiplication table. It practically depends on expressing one of the factors in the binary scale of notation and multiplying the other factor by successive doubling. If we want to multiply 45 by 24 we divide 45 repeatedly by 2, obtaining 45, 22, 11, 5, 2, 1, and against these numbers write the successive doubles of 24, thus, 24, 48, 96, 192, 384, 768, then we add together all the terms of the second series standing opposite *odd* numbers of the first series (thus omitting 48 and 384), and their sum is the required product. The rule scarcely needs any further proof, and, we may add, can be used to multiply numbers expressed in Roman numerals.

THE May number of the *Journal de Physique*, published by the French Physical Society, contains forty-five pages of memoirs and thirty-three pages of abstracts of important physical papers which have appeared elsewhere. The first section includes the address by Prof. Poincaré on the relations between matter and ether delivered to the Society on April 11, and that by M. Charles Maurin on recent researches in aërotechnics and aërial navigation. Of the abstracts, sixteen are from the March and April numbers of the *Comptes rendus*, eight from the April number of *The Philosophical Magazine*, ten from the March and April numbers of the *Annalen der Physik*, nineteen from the *Physikalische Zeitschrift* of the same dates, and thirteen from the *Zeitschrift für physikalische Chemie*, from December, 1911, to April, 1912. It is clear from these facts that the *Journal de Physique* keeps the members of the French Physical Society well up to date, not only in regard to its own proceedings, but in matters of interest to physicists which occur in the world outside.

THE Institute of Metals has just published the seventh volume of its Proceedings, a book of 382+ix pages, in addition to which there are twenty-two full-page plates, and a frontispiece reproduced from a photograph of the president of the institute, Prof. W. Gowland, F.R.S. The major portion of the volume consist of a series of papers of scientific interest, which were read at the annual general meeting of the institute held in London in January last, of which summaries appeared in NATURE of January 25 (p. 427). The presidential address dealing with the subject of "Copper and its Alloys in Early Times," was summarised in our issue of March 28 (p. 98). In addition to the above papers, the volume contains a report of the proceedings of the Birmingham Branch of the institute, and a valuable series of abstracts of papers.

A SECOND article dealing with Messrs. Whiteley's new premises appears in *The Builder* for June 21. In accordance with modern ideas, old-fashioned methods of sweeping and dusting have been abandoned in favour of vacuum cleaning apparatus, constructed by the Vacuum Engineering Company, Ltd., of London. There are three powerful vacuum machines, each consisting of a turbine vacuum cleaner having a normal capacity of 800 and a maximum capacity of 1800 cubic feet of air per minute. A centrifugal separator collects the dust in a tank, and the air passes away through an exhaust outlet 18 in. in diameter. The main risers are 4 in. in diameter, and have an aggregate length of about 1000 ft.; the horizontal pipes are 5 in. in diameter with an aggregate length of 1200 ft.; all these pipes are of mild steel, of specially smooth interior. There are 104 inlets, to which hose-pipes may be attached; these are distributed at convenient points on the walls of the building. The hose-pipes are of 2-in. internal diameter, and from twelve to twenty-four of them may be in use simultaneously.

MR. JOHN MURRAY now publishes in this country, at 6*s.* net, Dr. L. O. Howard's book, "The House Fly—Disease Carrier: an Account of its Dangerous Activities and of the Means of Destroying it," which was published by the Frederick A. Stokes Co. of New York in 1911. The book was reviewed at length in these columns on January 11 last (vol. lxxxviii., p. 345).

MR. W. H. HARLING, Finsbury Pavement, London, has issued No. III. of his sectional catalogue of mathematical, drawing, and surveying instruments. This section gives exhaustive particulars and the prices of numerous forms of scales, pantographs, planimeters, and other instruments in constant use by draughtsmen, surveyors and others.

MR. S. A. McDOWALL's "Laboratory Notebook of Physics," which was reviewed in the issue of NATURE of May 30 (vol. lxxxix., p. 317), can now be obtained from Messrs. J. M. Dent and Sons, Ltd., in four separate parts. The parts deal respectively with measurement and hydrostatics, heat, light, and magnetism and electricity. The price of part i. is ninepence net, and of each of the others one shilling net.

MESSRS. J. M. DENT AND SONS, LTD., have added to their "Educational Journey" series, a pamphlet of sixty-four pages, by Mr. G. H. Green, entitled a "Nature-study Note-book," the price of which is 6*d.* The booklet is profusely illustrated, and is intended to be of service to young pupils who are fortunate enough to be taken by their teachers for school journeys—an educational expedient which is fortunately becoming increasingly common in this country.

OUR ASTRONOMICAL COLUMN.

THE SPECTRUM OF NOVA GEMINORUM NO. 2.—Further particulars of the reported discovery of radium, uranium, and emanation radiations in the spectrum of Nova Geminorum are communicated to No. 4582 of the *Astronomische Nachrichten* by Prof. Küstner.

The plates were taken and reduced by Dr. H. Giebeler, who discusses the peculiar variations of the structure of the several emission and absorption bands of hydrogen, &c., and gives three curves showing the relative intensities of the bands and the continuous spectrum on March 19, 26, and 27 respectively.

It is among the numerous fine, so-called absorption lines, to which so many origins and so many different radial-velocity shifts have been ascribed, that Dr. Giebeler finds the coincidences with lines due to the radium group of elements. Taking all the known radium spark lines, from a table given in the manuscript for the sixth volume of Prof. Kayser's "Handbuch," twelve in all, he finds a line approximately coincident with each of them in the nova spectrum; the differences range from −1·66 to +1·32 Å. Although eight negatives were measured, four of these nova lines were found to occur once only, and each of them on a different negative taken on another date; two others, also occurring once only, are found on a fifth negative. Only three lines were found to occur on as many as three negatives, and, while the intensities of the laboratory lines range from 50 to 2, the intensities of these three lines are 2, 4, and 2 respectively. The mean wave-length of the nova line attributed to the strongest radium line ($\lambda = 4340{\cdot}83$) is 4341·65, a position very near to the dark reversal of $H\gamma$.

Of six arc lines of uranium four are represented in the spark and four in the nova spectrum, but of the four spark lines only two appear in the nova, and the only line, $\lambda 4472{\cdot}50$, which, from the laboratory data, may be an enhanced line, is not represented in the nova at all, unless one accepts the line shown on one negative at $\lambda 4471{\cdot}88$; but Dr. Giebeler assigns this to helium. The four lines attributed to uranium occur on four different negatives, the only one to occur twice being the 4341 line already attributed to radium.

Of the ten lines shown in the Giessler-tube spectrum of the emanation, six are represented in the nova spectrum with differences varying between +0·64 and −0·51 Å, the intensities in the laboratory spectrum being 20, 5, 10, 10, 4, and 4 respectively; the corresponding intensities of the lines not represented are 6, 15, 10, and 7 respectively. Of the six lines approximating to coincidence, only two are shown on any one negative (April 2); each of the other four appears once only, on four different dates ranging from March 16–19.

From the above brief summary it will be seen that the presence of these radio-active elements in the nova should be accepted with great reserve until more conclusive evidence is forthcoming.

A CHANGEABLE RED STAR, WX CYGNI.—In October, 1903, Prof. Wolf announced the discovery of a probable new star, which subsequently proved to be BD+37° 3876, and Prof. Barnard examined it with the 40-in. Yerkes refractor. He re-observed it last summer, and now communicates the results of his measures in No. 4581 of the *Astronomische Nachrichten.* The object shows marked fluctuations in colour, at times appearing a very deep red, and varies in magnitude. It is evidently of special interest, and Prof. Barnard gives a scaled chart showing the neighbouring reference stars used by him; the position, for 1911·0, is $\alpha = 20^h\ 15^m\ 14{\cdot}65^s$., $\delta = +37^\circ\ 10'\ 15{\cdot}3''$